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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/912,388	07/26/2001	Takao Kawasaki	040679-1315	8034
22428	7590	01/15/2004	EXAMINER	
FOLEY AND LARDNER SUITE 500 3000 K STREET NW WASHINGTON, DC 20007			CORRIGAN, JAIME W	
			ART UNIT	PAPER NUMBER
			3748	

DATE MAILED: 01/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/912,388

Applicant(s)

KAWASAKI ET AL.

Examiner

Jaime W Corrigan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 20-41 and 43-56 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 21-33, 35, 36, 39 and 47 is/are allowed.
- 6) ☒ Claim(s) 20, 34, 37-38, 40-41, 43-46, 48- is/are rejected.
- 7) ☒ Claim(s) 51 and 53 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☒ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

This Office Action is in response to the Amendment filed on 24 October 2003. 20-21, 34-35, 37, 39, 43-44, 47-48, 50-51, 53 have been amended. Claims 19, 42 have been canceled. Claims 55-56 have been added. Overall, claims 20-41, 43-56 are pending in this application.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 20, 34, 37-38, 40-41, 43-46, 48-50, 52, 54-56 are rejected under 35 U.S.C. 102(e) as being anticipated by Fukuma (PN 6,000,385).

Regarding claims 48, 55-56 Fukuma discloses means (See Figure 1 (30), (26), (28), (32)) for collecting information on an exhaust valve closing timing, an intake valve opening timing and an engine speed of the engine (See Figure 1 (30), (26), (28), (32), Column 5 Lines 8-56); and means (See Figure 1 (30), (26), (28), (32)) for calculating an estimated internal EGR quantity of the engine in accordance with the exhaust valve closing timing, the intake valve opening timing and the engine speed (See Figure 1 (30), (26), (28), (32), Column 5 Lines 8-56), the means for calculating the estimated internal EGR quantity including means for calculating a base internal EGR quantity in

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accordance with the exhaust valve closing timing and the engine speed (See Figure 1 (30), (26), (28), (32), Column 5 Lines 8-56), and for setting the estimated internal EGR quantity equal to the base internal EGR quantity when there is no valve overlap between an exhaust valve opening period and an intake valve opening period (See Column 6 Lines 17-32, Column 9 Lines 1-14).

Regarding claims 20, 50, 52 Fukuma discloses as the exhaust valve closing timing, a target exhaust valve closing timing is used for calculating the estimated internal EGR quantity period (See Abstract, Column 6 Lines 17-32, Column 9 Lines 1-14).

Regarding claims 34, 54 Fukuma discloses the method is an engine cylinder intake air quantity calculating method, and the method further comprises: calculating an engine cylinder intake air quantity in accordance with the estimated internal EGR quantity (See Column 6 Lines 61-67, Column 7 Lines 1-11).

Regarding claim 37 Fukuma discloses the method is an engine control method, and the method further comprises: controlling the engine in accordance with the estimated internal EGR quantity (See Column 5 Lines 8-24, Column 6 Lines 17-32).

Regarding claim 38 Fukuma discloses the method is an engine ignition timing control method, and ignition timing of the engine is controlled in accordance with the estimated internal EGR quantity (See Figure 1 (10), Figure 5).

Regarding claims 40, 46 Fukuma discloses the method is an engine valve timing control method, and an intake valve closing timing of the engine is controlled in accordance with the estimated internal EGR quantity (See Column 5 Lines 32-56).

Regarding claim 41 Fukuma discloses the intake valve closing timing is controlled in accordance with the estimated internal EGR quantity and a target intake air quantity calculated in accordance with an engine operating state (See Column 6 Lines 61-67, Column 7 Lines 1-11).

Regarding claim 43 Fukuma discloses the apparatus is an engine cylinder intake air quantity estimating apparatus; and the apparatus further comprises: an engine cylinder intake air quantity estimating section to calculate an engine cylinder intake air quantity in accordance with the estimated internal EGR quantity (See Column 6 Lines 61-67, Column 7 Lines 1-11).

Regarding claim 44 Fukuma discloses the apparatus is an engine control apparatus (See Figure 1 (10), (30)); and the apparatus further comprises: a controlling

section to control the engine in accordance with the estimated internal EGR quantity
(See Column 6 Lines 61-67, Column 7 Lines 1-11).

Regarding claim 45 Fukuma discloses the controlling section is configured to control an ignition (See Figure 1 (10), Figure 5) timing of the engine in accordance with the estimated internal EGR quantity (See Column 6 Lines 61-67, Column 7 Lines 1-11).

Regarding claim 49 Fukuma discloses means for controlling an engine operating parameter of the engine in accordance with the estimated internal EGR quantity (See Column 5 Lines 8-24).

Allowable Subject Matter

Claims 21-33, 35-36, 39, 47 are allowed.

Claims 51, 53 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Shimizu et al. (PN 5,703,285), Shirakawa (PN 5,682,864) disclose similar EGR control systems.

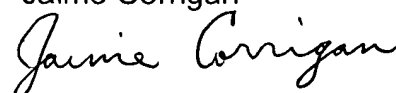
Any inquiry concerning this communication from the examiner should be directed to Examiner Jaime Corrigan whose telephone number is (703) 308-2639. The examiner can normally be reached on Monday - Friday from 8:30 a.m. – 6:00 p.m. 2nd Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion, can be reached on (703) 308-2623. The fax number for this group is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0861.

JC

Jaime Corrigan



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Patent Examiner

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